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SEPTEMBER 1950 MEETING OF THE POLISH  
STATE VETERINARY INSTITUTE

The scientific meeting of the PIW (Panstwowy Instytut Weterynaryjny, State Veterinary Institute), held 16 - 17 September 1950, was opened by Professor Doctor Trawinski, research director. Among those present were the vice-director of the Veterinary Department of the Ministry of Agriculture and Land Reform, the director of the PIW, the vice-president of the Maria Curie Skłodowska University of Lublin, the deans of veterinary faculties of the Universities of Warsaw and Lublin, the delegate of the veterinary faculty of Wrocław University, scientific workers of the PIW, and military and field veterinarians.

Trawinski read a report entitled "Scientific Research of the PIW in the Six-Year Plan," which described the general nature and requirements of scientific work at present, with particular reference to workers in the PIW. His report included the following statements: Scientific problems assigned to the PIW cannot be solved by individuals but by collective effort based on Soviet science. In addition to collective research, scientists may undertake individual projects as authorized by the PIW research director. Research workers at the PIW have better working conditions than university scientists, who are burdened with teaching in order to turn out needed veterinary personnel in as short a time as possible. In addition, they must devote considerable time to administrative duties.

In the first postwar years the main emphasis at the PIW was on the production of veterinary biologicals for the control of contagious animal diseases. Now that the plant producing biologicals is well organized, the major part of the PIW's work is directed toward research. The PIW is becoming a true experimental research institute, and should become a quasigeneral staff for the Veterinary Department of the Ministry of Agriculture and Land Reform in solving realistic scientific problems, and in disseminating scientific discoveries throughout the country.

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The announcement of the Bureau of the Organization of Agricultural Research of the Ministry of Agriculture and Land Reform states that scientific research in the veterinary field, as a rule, is to be handled by the PIW. The PIW may entrust certain work to scientists in university faculties as required.

Trawinski reported on the subjects of scientific research for the coming 6 years as authorized by the Scientific Council of the Ministry of Agriculture. He also proposed that research groups work on specific problems, listing the three major problems as follows:

1. Improved veterinary methods for the control of sterility in domestic animals, especially cattle and horses. Research group: Dr Domanski, chairman; Prof-Dr Szczudlowski, Prof-Dr Runge, and Dr Jaskowski.
2. Research on virus diseases of domestic animals and the most efficient methods of control of these diseases. Research group: Prof-Dr Parnas, chairman; Prof-Dr Legezynski, Prof Dr Zulinski, Prof Dr Trawinski, Prof-Dr Brill, and Dr Szaflarski.
3. Research into and application of the most modern methods of controlling (especially the Soviet school of Skryabin) parasitic diseases, especially staggers (motyllica), gadfly, etc. Research group: Prof-Dr Stefanski, chairman; Dr Zarnowski and Dr Soltys.

Other problems given first priority are as follows:

4. Improved methods for the control of contagious diseases in cattle, especially tuberculosis, streptococcus inflammation of the udder, and yearling diseases. Research group: Prof-Dr Brill, chairman; Prof-Dr Parnas, Prof-Dr Kulczycki, Dr Chodkowski, and Dr Teklinski.
5. Improved methods for the control of contagious diseases in pigs, especially influenza in suckling pigs. Research group: Prof-Dr Zulinski, chairman; Prof-Dr Parnas, Prof-Dr Legezynski, Dr Majan, Dr Radomski, Dr Stepkowski, Dr Chwalibog, and Dr Kobusiewicz.
6. The control of contagious anemia. Research group: Dr Domanski, chairman; Prof-Dr Zulinski, Prof-Dr Zakrzewski, Dr Zebrowski, and Dr Radomski.
7. Improved methods for the control of diseases of fowl, especially cholera, diarrhea in chicks, and diseases contracted from mammals. Research group: Dr Teklinski, chairman; Dr Teklinska, Dr Marek, and Dr Jastrzebski.
8. Preventative vaccination as a means of controlling rabies. Research group: Dr Janowski, chairman; Prof-Dr Legezynski, and Prof-Dr Stryszak.
9. Health safeguards for fish, especially control of septicemia (pasocznica) in carps. Research group: Dr Korylowski, Dr Marek, Dr Grabda, and Dr Miaczynski.
10. Study of histological and chemical changes in meat decay for testing freshness. Research group: Prof-Dr Trawinski, chairman; Dr Trawinska.

The following he gave second priority.

11. Influence of apiary diseases on the productivity of bees, and the formulation of prophylactic principles, especially in relation to "rozpadnica" (disappearing diseases?). Research group: Dr Kirkor, chairman; Dr Kozikowski.
12. Prophylaxis in silkworm breeding. Research group: Dr Kirkor, chairman; Dr Golanski.

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13. Serological research for the control of stock breeding diseases, on the basis of experiments on laboratory animals. Research group: Dr Grycz, chairman; Prof-Dr Stefanski, Dr Szaflarski, and Dr Ratomski.

On the recommendation of Dr Parnas, the following two subjects were added to the projects to be dealt with in the Six-Year Plan:

1. Standardization in the diagnosis of contagious diseases. Research group: Dr Brill, chairman; Prof Parnas, Dr Szwejkowski, Dr Ratomski, Dr Szaflarski, and Dr Golaszewski.

2. Control of veterinary biologicals and medicines. Research group: Dr Jastrzebski, chairman; Prof Brill, Dr Woloszynski, Dr Kobusiewicz, Dr Chwalibog, and Dr Zolnierczyk, VMD.

Dr Jastrzebski brought up the matter of classifying drugs as approved drugs and so-called widely tested drugs, on the Soviet model. He also proposed the creation of a commission to aid the PIW management in the production of drugs. In accordance with this suggestion, a group was set up to study testing of veterinary drugs and biologicals. This group will consist of Dr Jastrzebski, chairman; Doctors Brill, Kulczycka, Doppe, Kobusiewicz, Grycz, Woloszynski, Lukaszewicz, Mastalerz, Nagorski, and Szwabowicz.

Dr Cena stated that the scientific research of the PIW during the Six-Year Plan is adapted mainly to the needs of agriculture, but that, in the short run, it should be supplemented by ecological study of local terrain and climatic conditions. He urged research on environmental and climatic conditions, pointing out the close relationship between environment and animal health. He then proposed the creation of an institute for ecological research. On Dr Cena's recommendation, a resolution was passed calling for work on environmental research from the standpoint of zoohygiene. The research group consists of Dr Domanski, chairman, and Dr Cena. Whenever necessary, the chairman may select additional scientists upon consent of the PIW research director.

Professor Trawinski emphasized that the chairman of the committee on administration and finance should be a long-standing member of the PIW.

Bida, vice-director of the Veterinary Department, reported on his recent visit to the USSR, as follows: One is impressed by the large staffs at the USSR scientific research institutes. In every institute and in every bacteriological laboratory there is a veterinary doctor specializing in epizootiology. It is his job to remain in constant contact with the field not only to study and control existing epizootic diseases, but also to aid in the prevention of new epidemics. Although many new diseases have been observed as a result of more intensive animal husbandry in the USSR, tremendous progress in the control of contagious animal diseases is noted. The organization and coordination of experimental veterinary research throughout the USSR is directed by the VIEV (All-Union Institute of Experimental Veterinary Medicine). The work plan for a given period comes from the Veterinary Science Council of the Ministry of Agriculture. After assessing field requirements, the council recommends problems for investigation to the VIEV. There they are confirmed as to subject matter and geographical areas and then sent to various regional institutes which work out the assignments in greater detail, according to the requirement of their respective areas. The institutes return the proposed projects with recommendations and comments to the VIEV. Then, the assignments are finally approved and carried out. Personnel standards are very high both for veterinary doctors and for research assistants.

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Professor Brill, also in the group which visited the USSR, made the following observations: The highest agency in the production of biologicals in the USSR is the Central Control Institute, which has inspectors regularly stationed at every factory producing biologicals. The second-ranking agency is the VIEV. The VIEV has 16 professors who do only research. To prevent one-sidedness in their work, constant joint scientific conferences are organized to discuss achievements in various fields. At the moment the VIEV is concerned with 20 main subjects and 200 secondary subjects. In the lower echelons of scientific research are the oblast research centers, which correspond to the Polish WZHW (Wojewodzkie Zaklady Higieny Weterynaryjnego, Wojewodztwo Institutes of Veterinary Hygiene), and the rayon research centers (corresponding to one or more powiats). The job of the oblast centers is not only the diagnosis of diseases, but also the development and application of the most effective methods of disease prevention.

Dr Jastrzebski, also a member of the delegation to the USSR, reported that there is unprecedented interest in biology there. He stated that the problem receiving most attention at present, besides the work of Boshyan, is the work of Prof Olga Lepeshinskaya, who subjected several types of hydras to dehydration and grinding in a mortar. After mixture with a normal saline solution they were filtered through a Berkfeld filter, from which a filtrate called a pre-protein was obtained. After a certain period of time a regeneration of individual cells occurred, and finally the regeneration of the entire hydra body. This experiment advances the hypothesis that a pre-protein exists in organic life from which all bacteria and virus may be reproduced.

He stated that in Soviet laboratories producing biologicals, the staff is paid according to work done, calculated on the basis of thousands of norms dependent on conditions and requirements.

Prof-Dr Trawinski emphasized that the problems of manpower in the PIW arises from three causes: (1) the fact that the PIW is located far from large cities, which hinders the hiring of skilled workers; (2) the acute shortage of building facilities in Pulawy; (3) the shortage of suitable laboratory assistants.

Prof-Dr Parnas pointed out that there is a course in microbiology at the Faculty of Agriculture of Maria Curie Sklodowska University in Lublin. He continued: Despite the fact that there are many candidates studying veterinary microbiology, it is impossible to employ these people at the PIW for practical work because of the lack of scholarships from the Ministry of Agriculture and Land Reform. The problem of liaison between research workers and the field is aggravated because epizootiologists do not possess travel facilities.

Prof-Dr Trawinski added that for the past 2 years the Ministry of Agriculture and Land Reform has been urged to create a separate institute independent of the PIW to control the production of biologicals, since the control of biologicals produced in the PIW by a department within the PIW is unethical; to date, however, the recommendation has not been acted upon, largely because of the absence of a suitable person to do the job.

Reports on specific problems of veterinary medicine followed this discussion of Polish and Soviet veterinary facilities and personnel. Extracts from these reports are given below, with the name of the doctor making the report, and any comments on it by other participants.

#### Cattle Gadfly

Prof-Dr Stefanski: Partial knowledge of the movements of the cattle gadfly larvae indicate the great economic losses caused by this parasite. When the gadfly attacks cattle in pastures, the cattle seek shelter in the nearest

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pond, wooded cover, etc., and the pasture period is not utilized adequately. The insect larvae, penetrating the skin, cause irritations and scurf. Incomplete data on the movement of the larvae within the animal's body indicate that these migrations result in damage to tissues, and even favor the penetration of disease-producing microorganisms. In particular, the *Hypoderma bovis*, whose larvae eventually penetrate the spinal column, may cause paresis, and even paralysis of various parts of the body. The larvae cause inflammation of the subcutaneous tissues, resulting in toxic metabolic effects and loss of weight. Upon breaking through the skin, the inflammation changes into a purulent sore, and sometimes, larger suppurating areas. The carcass of such an animal has a repulsive appearance. The areas infected with the larvae are covered with yellow-green scabs, and the meat must be condemned. Thus, up to 7 kilograms of meat may be lost from one carcass. The damage done by gadfly larvae usually affects the back, the most valuable part of the hide. Hides damaged in this manner lose up to 60 percent of their value. According to statistics from the USSR, 11.8 percent of the hides in 1940 were damaged. This also applies to other countries. For instance, in Britain the gadfly damages enough hides to supply shoes for 20 million children.

It must be supposed that the secretion of toxin by the gadfly larvae plays some part, but this has not been mentioned in any of the literature on the subject and no research has been done along this line.

#### Helminthiasis

Prof-Dr Stefanski: Hog raising plays an important part in the Six-Year Plan. Invasive diseases especially helminthiasis, are of special significance in hog raising. Until now there has been no effective remedy for helminthiasis. Santonica has been applied but found ineffective and toxic. *Ol. chenopodii*, among other drugs, was found to be effective. Sodium fluoride is indicated as an effective agent and least toxic. The dose for swine is .25 gram per kilogram of live weight, mixed with feed in the proportion 1:100. Sodium fluoride is still an experimental drug and is not yet approved.

Prof-Dr Stefanski demonstrated several examples of *Thelazia rhodesii* found in the eye sockets of several cows in Pulawy Powiat. These nematodes, as indicated by the latest research, are carried by the fly, *Musca convexiformis*.

#### Phthisis of the Udder

Dr Chodkowski: The cow is the primary source of infection in cattle tuberculosis. In healthy cattle it is caused by inhalation in 80-90 percent of the cases. In calves, swine, and children the infection is caused in directly by consumption of milk, especially from cows suffering from tuberculosis of the udder. Tuberculosis of the udder is a consequence of tuberculosis of respiratory, alimentary, or genital organs. In 90 percent of the cases, tuberculosis of the udder is the result of embolic infection, rarely of infection from contaminated stalks, hay, or catheters used for the treatment of ordinary inflammation of the udder. The reduction of infection resulting from the consumption of contaminated milk by people (especially children), calves, and swine requires the elimination of all cows with tuberculosis of the udder in the country. This can be accomplished by destroying all such cows on the basis of periodic clinical and allergy examinations by veterinary doctors, by bacteriological and biological examination of milk from cows suspected of having tuberculosis of the udder, and by teaching cattle owners the symptoms and stressing their duty to report every case. Only cooperation among veterinarians, dairies, and bacteriological laboratories can bring about as effective control of tuberculosis of the udder in cows as in other countries. The ideal method would be the destruction of all cattle reacting positively to tuberculin.

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The fight against tuberculosis in man ought to go hand in hand with the fight against phthisis in animals. There should be close cooperation between the medical service and the veterinary service. The slaughterhouse can also help, by examining the type of bacillus in cattle to determine the presence of human tubercular bacilli.

Prof-Dr Brill: Prof Lawrynowicz analyzed the milk supplied to the residents of Warsaw and obtained 40 percent positive reaction. However, the presence of bacilli in milk does not always indicate tuberculosis of the udder, since Koch's bacilli pass directly from the blood to the milk in the active stage of tuberculosis. A practical method for large-scale analysis of milk is by means of the fluorescent microscope and by Freisch's method.

Prof-Dr Parnas: To control human tuberculosis of animal origin, the Ministry of Health has opened two research centers devoted exclusively to this problem. The work of these centers has resulted in a change in the law on BCG inoculation of children, so that not only tubercular children or children of tubercular parents are vaccinated but also those who drink the milk of diseased cattle. There were two cases at the Lublin laboratory in which it was incontrovertibly proved that several children were infected with the bovine type bacillus from milk. Detection of bacilli in milk is difficult because saprophytic acid-resistant bacilli are mistaken for Koch's bacilli, and it is necessary to apply a reagent as a check.

#### Infectious Anemia in Horses

Dr Domanski (docent): For a better understanding of infectious anemia in horses, tests were made of the bilirubin and iron content of the blood of diseased horses to determine the changes in red corpuscles, the morphology of blood circulation, and the reaction of the bone marrow in acute and chronic forms of anemia. The amount of bilirubin and iron in the blood in acute cases is increased, in correlation to the decrease in erythrocytes. In chronic cases the amount of bilirubin increased after an attack of fever, while the amount of iron did not usually increase. The lack of correlation between the bilirubin and the iron levels in mild and chronic cases may be explained by the recuperative faculty of the system to extract iron from blood plasma. The increase in the amount of bilirubin in the blood with a simultaneous decrease in the number of corpuscles indicates a breakdown of the blood. No change of hemoglobin is noted even with the greatest decrease in red corpuscles (1,300,000) in acute cases, but in chronic cases, the Hb index and the number of Hb in the red corpuscles decreases. Research should be done on anemia in horses from the standpoint of parasites and malnutrition. In acute cases, a preponderance of leucoplastic elements over erythroplastic elements was found in the marrow of the bones, indicating irritation of the leucoplastic system rather than damage to the erythroplastic system. Further research is being conducted on these problems.

Prof-Dr Zulinski: On the basis of the diagnosis of 139 horses, experiments were conducted by T. Wisniewski to determine the main histological changes in infectious anemia. Taking into account the possibility of similar changes from other diseases (according to observations of Stanski, Zadura, and Zulinski), an accurate diagnosis of infectious anemia in horses is possible in the majority of cases. On this basis, during the years 1947 - 1950, infectious anemia was diagnosed in 59 horses. The greatest incidence of the disease was observed in Slask Wojewodztwo (23 percent), Poznan Wojewodztwo (12 percent), Pomorze Wojewodztwo (9 percent), Szczecin Wojewodztwo (6 percent), and Olsztyn Wojewodztwo (4 percent).

Dr Marczyński asked if a change in the number of white blood cells was observed in cases of infectious anemia.

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Prof-Dr Stefanski: The rule of procedure for infectious anemia necessitates simultaneous research on parasites of the blood, which is impossible because of the receipt of smears in unfit condition.

Dr Zebrowski recommended use of supravital dyes in blood smears to make the nucleus of the erythrocyte visible.

Dr Domanski emphasized the difficulty stemming from the lack of a physiological chart of the spinal column of the horse.

#### Leukemia in Chickens

Dr Domanski (docent): At the Grabowo experimental farm, observations on the course of leukemia in chickens were made over a 4-year period. The main emphasis was to determine the form of the disease, and the influence of methods of chicken care, especially feeding. During the first 3 years the chickens showed symptoms of anemia. Changes occurred in the ruff, organs, and the pericardium which resembled pustules. In the fourth-year cases, symptoms of anemia and paralysis of the limbs appeared, typical of Mark's disease. At the same time, the number of diseased chickens increased greatly. During the preceding 3-year period there were a total of 62 cases, while in the first 3 months of the fourth year there were 60 cases. The diseased chickens were mostly leghorns suffering from symptoms of Mark's disease. Conditions preclude the possibility of the entry of a virus from outside the farm. This indicates that the disease with nervous symptoms has a common basis with the disease which had previously appeared at the farm and was characterized chiefly by changes in the blood. The preponderance of nervous symptoms over changes in the blood in the disease in the fourth year suggests that the virus had been modified and had decreased in severity and virulence. Observations on the feeding at the farm and treatment of the sick fowl with feed enriched with vitamin B complex indicates that a lack of these factors increases the susceptibility of chickens to disease.

Dr Marek termed leukemia a disease of the future. He asked whether vitamin deficiency (as a result of the 1950 drought) of parasites could have been the cause of the disease in the cases presented by the lecturer.

Dr Zebrowski commented that Furth and Jarmai had demonstrated that it is possible to obtain erythroleucocytic and lymphomatous symptoms from a single virus. On the other hand, neurolymphomatosis has never been demonstrated with the accompaniment of another virus, as observed by Dr Domanski in spontaneous cases.

Prof-Dr Zulinski observed changes in the liver resembling necrosis, followed by neoplastic growths, and, finally, lesions suggesting tuberculosis. Therefore, research is indicated on the histological phases of leukemia.

#### Trichomoniasis; Flagellata Research

Dr Jaskowski: In two powiats which had had an outbreak of trichomoniasis caused by flagellata, a repeat examination of bulls showed that the number of infected bulls had grown from 21 to 42. Of this number, 38 were newly infected. Observations indicated that the infection is easily transferred to bulls by infected cows. In 90 percent of the infected bulls, neither clinical tests nor examinations showed acute inflammation of the genital organs. On the other hand, a significant percentage of suppurative cells were present in specimens taken from the prepuce (a symptom of protracted inflammation). No decrease was noted in the quality of the semen; nevertheless, the fertility of the infected bulls was low, the calving rate being less than 40 percent. Because of the absence of

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definite clinical symptoms, the recognition of the disease in bulls generally occurs 6-9 months after infection, during which time 60 to 100 cows usually become infected by the diseased bulls. The economic losses caused by sterility in cows infected by the diseased bull amount to 37,000 kilograms of milk and 26 calves, for each infected bull.

Prof-Dr Stefanski inquired about the superiority of culture detection methods over microscopic detection methods in flagellata research.

Dr Jaskowski: In view of the perishability of the specimens obtained for microscopic examination, the culture method surpasses the microscopic method by 80 percent.

Dr Domanski (docent): Efforts were made to conduct serological experiments. The carbohydrate fraction of the antigen yielded no results, but only the protein fraction. There is a possibility that the culture loses its antigenic properties after a long period of time and that the loss of virulence in parasites goes hand in hand with loss of antigenic properties.

Prof-Dr Trawinski recommended allergy tests.

Dr Jaskowski: Agglutination tests were made on slides, and positive results were obtained only with specimens containing no purulent cells.

Dr Jaskowski observed that the normal saline solution, usually used to irrigate the prepuce in collecting specimens for research on flagellata, is not a favorable environment for the flagellata. Tests on flagellata cultures in normal saline solutions showed that in stronger solutions the flagellata perished after 12 hours. The addition of a 20-30 percent normal horse serum, or the substitution of the Ringer fluid for the saline solution enabled the flagellata to survive up to 96 hours. To improve accuracy in recognition of flagellata infection in cultures, it is necessary to determine the optimum solution to preserve the vitality of flagellata outside a culture.

#### Vaccines for Chicken Plague

Dr Teklinski and Dr Teklinska: Experiments have been conducted since March 1948 on the duration of effective immunity to chicken plague (pomor kur) with injections of Indian vaccine (szczepionka indyjska). For the experiment, Indian vaccine is diluted in the proportion 1:2,000; the doses varied from .5 to 1 cubic centimeter depending on the age of the subject. The experiment covered 95 chickens; 41 of these chickens were 29 to 100 days old at the time of vaccination, and the rest were older. Seven died after the injection. All those that died were in the 29 to 100 day age group; two died 3 months after the vaccination, while five died within 14 months. Half of the chicks vaccinated at the age of one month retained immunity for more than 14 months. The longest period of resistance observed was 23 months. High hemagglutination was maintained for a year after the vaccination. After 23 months the hemagglutination number in half of the chickens fell to the lower limit of positive reaction, while in the other half of the chickens it continued at a high level. High correlation was found to exist between the hemagglutination number of the serum and immunity to chicken plague.

Dr Teklinska: Experiments under laboratory conditions and experimental inoculations at stock farms indicate that a vaccine prepared from the weakened Hertfordshire virus protects chickens from artificial and natural infection of the malignant virus of the so-called plague in Poland. Intramuscular injections are administered in doses of one cubic centimeter of a 1:2,000 solution. The concentrated vaccine consists of the chorioallantoic fluid of eggs killed by the introduction of the modified virus of so-called chicken plague. Immunity

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to artificial and natural infection is observed in the chickens 24-48 hours after inoculation. Reaction to inoculation in the form of paresis, paralysis, decrease in egg laying, etc., depends to a great extent on healthful conditions of breeding and feeding. The Hertfordshire virus can easily be preserved. It lives in a culture at a temperature of from zero to 4 degrees centigrade and retains its properties for 7 months. At room temperature it will retain its potency for 14 days.

Dr Teklinska: In administering Indian vaccine to chickens to control so-called chicken plague the injection is given intracutaneously on the underside of the wing. The vaccine consists of chorioallantoic fluid from eggs killed by modified Newcastle virus. This fluid is diluted with a 50-percent glycerine solution in proportions of 1:20, 1:50, 1:100. Effects of the vaccine were observed on 58 chickens under laboratory conditions. Immunity to artificial infection with virulent chicken plague virus takes place in some chickens within 24 hours. This was determined by infecting some chickens 24 hours after inoculation. Of the seven chickens used in this experiment, four died of the plague and three survived. Of the remaining chickens, eight were infected after 14 days, 12 after 5 days, and 31 after 2 days. They did not react to infection with virulent chicken plague virus. Examination of blood sera of these chickens 2 and 4 days after inoculation did not indicate a rise in inhibited hemagglutination, while after 11 days the blood of these same chickens indicated a very high increase in inhibited hemagglutination.

Dr Zebrowski, VMD: The blood cells of geese, ducks, pigeons, guinea pigs, cows, and human beings possess properties of cohesion in the presence of the modified virus of so-called chicken plague (Hertfordshire), used in preventive inoculations with live vaccine. Cohesive properties of erythrocytes in the above-mentioned animals vary between and within species. Variations within species are averaged by the use of blood mixtures from several members of the same species. Differences observed in the agglutination of the blood cells of birds and mammals should be attributed to differences in form and size of the blood cells of these two animal groups.

Prof-Dr Brill stated that after inoculation of chickens with Newcastle vaccine he observed various reactions beginning with paralysis and paresis and ending with depression and loss of appetite. The chickens which showed no reaction showed a hemagglutination number of 1/5, while in sick chickens (those with positive reactions) the hemagglutination number was 1/40 and 1/50. All the chickens which did not react to the vaccination or which reacted slightly remained alive and healthy. Those chickens with a hemagglutination number of 1/40 and 1/50 died. Therefore, there is a correlation between the hemagglutination number and the efficacy of the vaccine.

Dr Lorkiewicz: The hemagglutination reaction is a very sensitive reaction. The addition of a very small amount of copper salts (.6 milligrams per liter) affects the reaction. In the production of vaccines against chicken plague, the heterogeneity of virus types causing this disease should be taken into consideration. There was an outbreak of chicken plague in Bavaria in recent years caused by a virus called "N," a mutation of the plague virus. Laboratory experiments showed that virus N was virulent in chicks when introduced orally and cerebrally. Cerebral infection of mice proved to be disease-producing. Virus N is similar to the classic chicken plague virus with respect to its short period of incubation in mice and the disease symptoms, which mainly involve the nervous system. Like the classic virus, virus N was not disease-producing in pigeons. It did not infect guinea pigs and rabbits. In 1949, in Schongesing, when the vaccine against Newcastle's disease failed, the vaccine and serum against virus N gave positive results. Research in Poland should determine whether chicken plague is caused by a single type of virus or by several types, and proper prophylaxis and treatment should be adopted. The mechanics of the

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hemagglutination reaction has recently been partially explained. Burnet and Hurst showed that blood cell receptors are built up from mucoid groups. These groups may be broken up by the proper ferment. This ferment appears in old cultures of cholera antibodies and is called RDF (receptor destroying factor). This research explains the mechanics of Newcastle's virus infection of blood cells and tissues. The action of RDF on the tissues and blood cells prevented subsequent infection and agglutination.

Dr Marek: Paralysis of the extremities sometimes occurs after inoculation, and, on those farms where there are cases of leukemia, inflammation of the ovaries and the oviduct. Dissections often indicate changes in the ovaries. In 1940 paralysis occurred in .5 percent of young chickens inoculated, while in 1950 this figure increased to 3-4 percent. In older chickens paralysis is probably caused by chronic diseases which may be imperceptible at the time of inoculation. In 1950, observations indicated some retardation in the development of young chickens after inoculation, even when the vaccine was injected in .5-cubic-centimeter doses. This indicates the possibility of some modification (transfer) of the virus resulting from production of the vaccine from eggs of chickens previously inoculated with this virus. A similar phenomena could be observed by administering vaccines on aluminum hydroxide.

Prof-Dr Trawinski: The value of the vaccine on aluminum hydroxide depends to a large degree on the adsorbent, since there are several qualities of aluminum hydroxide which may fundamentally alter the effects of the vaccine.

Dr Teklinski: The increase in the incidence of paralysis among chickens inoculated in 1950, as compared with 1949, is refuted in the reports of the veterinary inspectors of the wojewodztwo offices throughout the country. As for the possibility of transfer of the virus to eggs of the chickens previously inoculated, experiments have shown that in several hundred eggs examined, only one chick was born with traces of congenital immunity.

#### Swine Plague Vaccine

Dr Majdan reviewed the development of swine plague (pomor swin), the methods and results of control, present conditions, and achievements in this field. He devoted the second part of his report to a detailed discussion of recent worldwide achievements in this field, the pathogenesis of the plague, and the properties of the vaccine on violet crystals [potassium permanganate?] introduced and used in the country on a wide scale. After a detailed discussion of the advantages and disadvantages of this vaccine and experience gained from its application, the speaker appraised the efficacy of the preparation in the control of swine plague in Poland and then spoke on the methods of diagnosing swine plague. The report will appear in its entirety in Medycyna Weterynaryjna.

Prof-Dr Trawinski emphasized the superiority of the swine plague vaccine produced in Poland in comparison with certain biologicals produced abroad. The swine plague vaccine on violet crystals recently received from Sao Paulo, Brazil, proved ineffective in experiments made at the PIW. Only two pigs out of 30 were immunized by injections of this vaccine.

Head Doctor Bachurzewski stated that the countryside has 100 percent confidence in the vaccine of the PIW. All pigs, both diseased and well, at the hog-fattening stations and the PGR (Panstwowe Gospodarstwa Rolne, State Farms), are first inoculated with serum and 10 days later with the vaccine. The results obtained in this manner were most favorable.

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The lecturer stated that, because of the danger of plague, hog-feeding stations should not be located near large cities. Vice-director Dr Bida disagreed, and cited the example of the hog-fattening station near Moscow where pigs are fed table scraps from restaurants. These scraps, with totally decayed potatoes, are boiled under a pressure of 2 atmospheres and then used as feed. Despite the fact that there are several score hog-fattening stations such as this in the USSR, they have not caused any swine plague.

Dr Jastrzebski added that the official serum dosage in the USSR is .5 whereas .25 is the usual dose.

#### New Disease in Eels

Dr Grabda demonstrated several cases of a new disease in eels. In August 1948, the research center on fish diseases in Bydgoszcz received the first report of the appearance of a new eel disease in Lake Leba. In the following year, the number of diseased eels increased. The disease also appeared in Lake Gardno in the Wisla River between the Brda River and Czarne Wody Canal. In 1950, in Lake Leba, 14.5 percent of the third-class commercial eels (150-300 grams) and 21.1 percent of the fourth-class commercial eels (150 grams and less) were diseased. The disease was characterized by growths on the head of the eel, particularly around the lips, nostrils, and the eyes, very rarely around the eel's trunk nearest the head, and more often around the breast fins. In extreme cases the diseases may be characterized by very large growths resembling cauliflowers. Often a collar is formed around the head about the size of a large fist, or the mouth opening is almost entirely closed. Likewise, blindness may result from complete closing of the eyes. The growths are nonmalignant neoplasmas which can be classed as papillomata.

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